Scientific Note
"Why the Sphere is the Ideal Shape for the First Artificial Planet"

One of the most critical questions in the early stages of creating an artificial planet is its shape. Science fiction often depicts planets in various forms, but it can be proven that a sphere is the only realistic option for an artificial planet.

1. Volume and Surface Area

The sphere is not the most efficient shape in terms of surface area relative to volume. As we know, a sphere provides the maximum possible volume for a given surface area. Overall, a sphere requires fewer resources than other shapes. In the future, with sufficient resources and advanced technology, alternative shapes could be used to increase usable surface area.

2. Gravity, Atmosphere, and Structural Stress

Gravity behaves extremely unpredictably on non-spherical shapes, creating uninhabitable conditions. Atmosphere and structural stresses concentrate at corners and edges, while remaining weak across flat surfaces.

3. Technology and Humanity

Both biology and technology are inherently adapted to a spherical planet. Moreover, the spherical shape is critically important for humanity. We simply do not know how the human body would function on a non-spherical planet.

4. Practical Experience

Our expertise is based entirely on spherical planets. We can accurately calculate trajectories, parameters, and properties specifically for spherical celestial bodies—we have no such capability for other shapes. Furthermore, the terraforming of Mars will only expand our experience in handling spherical planets.

5. Rotation

We have no understanding of how a non-spherical planet would rotate.

6. Thermal Regulation

A spherical planet distributes heat relatively evenly, unlike non-spherical bodies where heat accumulates in specific zones while being absent in others.

7. Natural Physics

Gravity exerts pressure on a planetary body, inevitably forcing it into a spherical shape. Any artificial planet would require significant additional effort to maintain a non-spherical form against this natural tendency.

Conclusion:
If we aim to create a habitable planet, we must adopt a spherical shape. Alternative forms would require substantial additional engineering efforts and solutions to all the challenges outlined above—along with countless others—making them impractical for the foreseeable future.

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